



Proposal to amend the requirement of Sheath Spark Testing in SANS 1507 Parts 4 and 5 (§ 4.2.5.5.3) to align with SANS 1507 Part 3 (§ 4.2.5.5.3)

1. Introduction

There is a misalignment in the requirement for the spark testing of cable sheath between SANS 1507 Part 3 and Parts 4 and 5.

SANS 1507-3, § 4.2.5.5.3, defines the spark testing of the sheath requirement as follows:

- "When tested in accordance with SANS 62230, there shall be no breakdown of the sheath. The spark test voltage applied shall be in accordance with table 1."

Note: Table 1 in SANS 1570-3 refers to spark test voltages used for core insulation. The spark test voltage designated to be used is in accordance with the cross-sectional area of the conductor.

SANS 1507-4 and SANS 1507-5 § 4.2.5.5.3 defines the requirements for spark testing of the sheath as follows:

- "When tested in accordance with SANS 62230, there shall be no breakdown of the sheath. The spark test voltage applied shall be in accordance with table 1 of SANS 62230:2015."

Note: There is no Table 1 in SANS 62230 and this is, therefore, an editorial error, where it should read Table A.1.

2. Proposed change to SANS 1507-4 and SANS 1507-5 § 4.2.5.5.3

A comparison of spark test voltages between Table 1 of SANS 1507 (Part 3) and Table A.1. of SANS 62230 is shown in Annex A. It can be seen for certain cable sizes, the spark voltage specified in SANS 62230 is double in value compared to SANS 1507-3. This is excessive for the cable sheath in comparison to the cable phase-core insulation that possesses defined dielectric properties.

The following change is proposed for SANS 1507-4 and SANS 1507-5 § 4.2.5.5.3:

- "When tested in accordance with SANS 62230, there shall be no breakdown of the sheath. The spark test voltage applied shall be in accordance with Table 1 (column 3, 600/1000V spark test voltage)."

3. Conclusion

There is a misalignment of the requirement for spark testing of the cable sheath between SANS 1507 Part 3 and Parts 4 and 5. The proposal is to amend SANS 1507-4 and SANS 1507-5 (§ 4.2.5.5.3) to align with the sheath spark testing requirement as defined in SANS 1507-3 (§ 4.2.5.5.3).

Annex A: Comparison of the sheath, spark test voltages between SANS 1507-3 and SANS 62230

Table A.1 Comparison of spark test voltages between SANS 1507-3, Table 1 and SANS 62230, Table A.1

	Sheath Thickness (mm)	SANS 1507-3 Table 1 Spark Test Voltage (a.c kV). (Based on cross-sectional area of conductor)	SANS 62230 Table A.1 Spark Test Voltage (a.c kV) (Based on radial thickness of layer under test)
CU 1.5mm ² 2C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	1.5	6	10
CU 1.5mm ² 10C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	1.6	6	12
CU 2.5mm ² 2C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	1.5	6	10
CU 2.5mm ² 12C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	1.6	6	12
CU 10mm ² 4C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	1.6	6	12
CU 16mm ² 4C SH PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	1.6	6	12
CU 25mm ² 4C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	1.7	10	12
CU 50mm ² 4C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	1.8	10	13
CU 95mm ² 4C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	2.2	10	14
CU 150mm ² 4C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	2.4	10	16
CU 240mm ² 4C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	2.8	10	19
CU 400mm ² 4C PVC PVC SWA PVC BLK/RED - SANS 1507 600/1000V	3	12	19